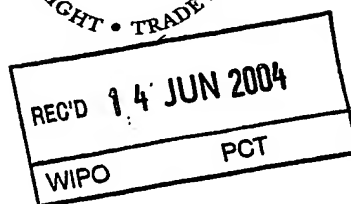




10/530960



INVESTOR IN PEOPLE



The Patent Office
Concept House
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NP10 8QQ

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THE PATENT OFFICE

26 SEP 2003

The Patent Office

Cardiff Road
Newport
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1. Your reference NEWPORT TAH/MR/P651.GBA

2. Patent application number
(The Patent Office will fill in this part) 0322549.7

3. Full name, address and postcode of the or of each applicant (underline all surnames)
LOADHOG LIMITED
THE OLD WEST GUN WORKS
SAVILE STREET EAST
SHEFFIELD S4 7UQ

8548372001

Patents ADP number (if you know it)

If the applicant is a corporate body, give the country/state of its incorporation ENGLAND

4. Title of the invention A CAP FOR PALLETISED LOADS

5. Name of your agent (if you have one) Hulse & Co
"Address for service" in the United Kingdom to which all correspondence should be sent (including the postcode)
St James House,
8th Floor
Vicar Lane
Sheffield S1 2EX

Patents ADP number (if you know it) 885002

If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or of each of these earlier applications and (if you know it) the or each application number	Country	Priority application number (if you know it)	Date of filing (day/month/year)

If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application	Number of earlier application	Date of filing (day/month/year)

Is a statement of inventorship and the right to grant of a patent required in support of this request? (Answer 'Yes' if:
a) any applicant named in part 3 is not an inventor, or YES
b) there is an inventor who is not named as an applicant, or
c) any named applicant is a corporate body.
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Patents Form 1/77

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Description 4

Claim(s)

Abstract

Drawing(s)

10. If you are also filing any of the following, state how many against each item.

Priority documents

Translations of priority documents

Statement of Inventorship and right to grant of a patent (*Patents Form 7/77*) 6

Request for preliminary examination and search (*Patents Form 9/99*)

Request for substantive examination (*Patents Form 10/77*)

Any other documents (please specify)

1.

I/We request the grant of patent on the basis of this application.

Signature

Date



25 September 2003

AS AGENTS FOR THE APPLICANT

2. Name and daytime telephone number of person to contact in the United Kingdom

T. A. HULSE
(0114) 276 9381

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A CAP FOR PALLETISED LOADS

This invention relates to a cap for use on palletised loads as described in UK Patent Application GB 0312791.7 and more particularly to a novel form of lever and ratchet mechanism for incorporation in such a cap.

5 The form of lever and ratchet mechanism described therein is based on a well-known type of device for tensioning a strap for securing a load on a lorry or a strap on a side sheet for protecting a load on a lorry, in which device the strap is wound round a spool between two arms of a bifurcated lever, a ratchet being provided between each end of the spool and the respective adjacent arm, the lever arms and spool and
10 ratchets being mounted on a common pivot in a mounting frame, with the ratchets secured for rotation with the spool and the lever rotatable with respect to the spool and ratchets, a drive plate slidably mounted on the lever, a first spring urging the drive plate into engagement with the ratchet to enable to-and-fro swinging of the lever to wind the strap round the spool and tension it, a securing spring urging the latching plate into
15 engagement with the ratchet to latch the ratchet at times when it is not being rotated by driving action of the lever through the drive plate, the drive plate being manually operable against the first spring to disengage it from the ratchet, and a cam on the lever for disengaging the latching plate from the ratchet after the drive plate has encountered and rides along a radius plate fixed in the mounting to hold the drive plate clear of the
20 ratchet when unwinding of the strap from the spool is required.

Such a device is usually wholly or principally of metal construction, with coil compression springs for the drive plate and the latching plate and could be adapted for incorporation in a cap as described in UK Patent Application GB 0312791.7 by providing a circumferential groove in the spool in which to reeve and wind one end of

the wire (or cable) the other end of which is secured to the pulley for effecting rotation of the slotted crossbar.

However, the primary object of the present invention is to construct the lever and ratchet mechanism with parts moulded in plastics material, with potential for reducing costs and weight. A secondary object is to incorporate torque limiting means in the lever to ensure that the wire (or cable) cannot be overloaded.

According to the primary object of the invention, therefore, there is provided, suitable for construction in plastics material, a bifurcated lever, a spool with a ratchet extending from one end to a circumferential groove adjacent the other end into which the wire (or cable) is reeved, the lever and the spool being rotatable about a fixed common axis in the housing and the lever being rotatable with respect to the spool, a ratchet drive pawl on a first resilient arm mounted in the lever, a latching pawl on a second resilient arm mounted in the housing to latch the ratchet at times when it is not being rotated by the driving action of the lever through the drive pawl, a fixed stop in the housing for limiting swinging of the lever (for example to 90°) from inoperative position, manually operable means for disengaging the drive pawl from the ratchet, and a cam on the lever for disengaging the latching pawl from the ratchet after the drive pawl has encountered and rides along a fixed radius plate in the housing beyond the stop means.

A spring is preferably provided to return the lever to inoperative position automatically, which spring is conveniently a torsion spring coiled about the lever and spool pivot and with end arms abutting projections on the lever and within the housing respectively; thus this spring is, along with the wire reeved to the spool in the circumferential groove, one of the only two metal parts required in the lever and ratchet

mechanism.

The manually operable means for disengaging the drive pawl from the ratchet may comprise a slider movable in the lever towards and away from the drive pawl, with a head on a neck passing through a slot in the first resilient arm, the head having lateral projections engaging ramps on each side of the slot when the slide is moved towards the drive pawl; there preferably also being a fixed abutment in the housing spaced from the fixed stop to be engaged by the slider to urge it back towards its inoperative position as the drive pawl rides along the radius plate.

It is preferable to ensure that the latching pawl cannot be unintentionally disengaged from the ratchet (e.g. through vibration during transporting of a capped load on a pallet) and this may be effected by providing a plate on the lever to lie alongside the second resilient arm when the lever is moved into inoperative position.

In accordance with the secondary object of the invention, torque limiting means is provided by forming the lever in two parts, an outer lever and an inner lever rotatable on the common pivot and rotatable with respect to each other to limited extent, the inner lever being shorter than the outer lever and carrying the drive pawl on the first resilient arm, the portion of the outer lever extending beyond the end of the inner lever being formed with a finger grip and the portion of the outer lever between the ratchet and the end of the inner lever being provided with a rigid tongue to engage the first resilient arm in a direction tending to urge the drive pawl out of engagement with the ratchet, whereby movement of the outer lever from inoperative position drives rotation of the inner lever, and hence rotation of the ratchet, solely through the tongue and the first resilient arm, so that, when the frictional force between a tooth of the ratchet and the drive pawl engaged therewith, resulting from the torque on the ratchet generated by the

load on the wire (or cable), is exceeded by the force of the tongue on the first resilient arm, that arm flexes to disengage the drive pawl from the ratchet.

Conveniently, the tongue is integral with the plate on the lever that prevents unintentional disengagement of the latching pawl from the ratchet; and the tongue may
5 be divided by a notch extending from the plate to allow passage for the head on the slider, with contact between the two parts of the tongue and the first resilient arm being alongside the respective ramps.